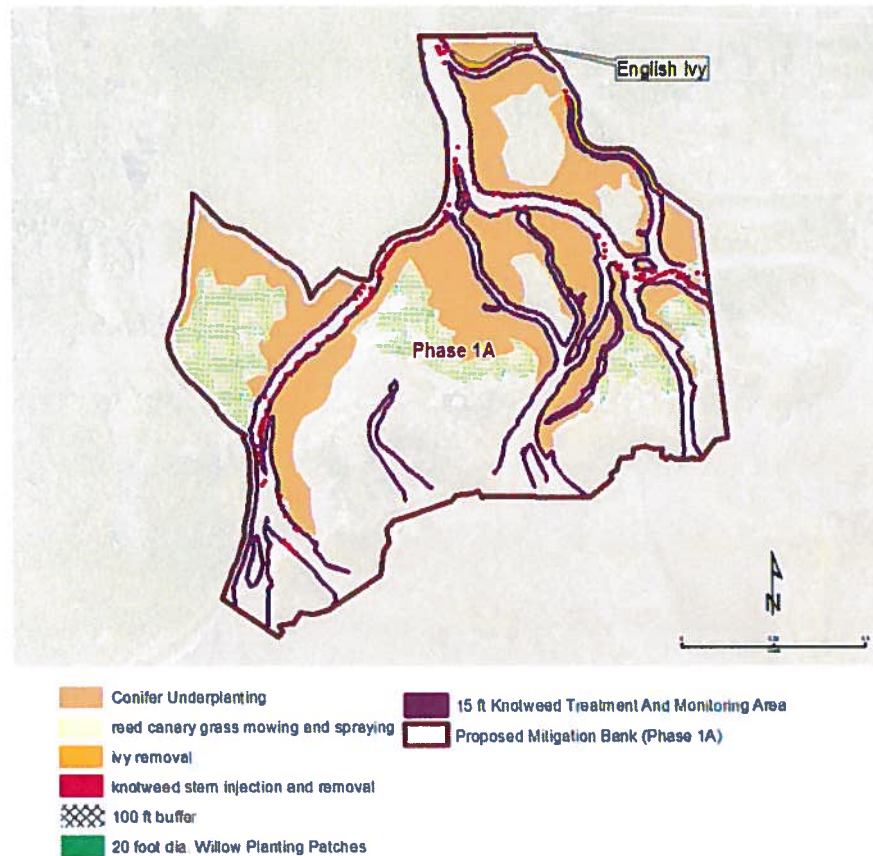


**Lummi Nation Wetland and Habitat Mitigation Bank**  
**2013 As-Planted Report**  
**Phase 1A Nooksack Delta Site**



**Prepared For:**

Interagency Review Team – Lummi Nation Wetland and Habitat Mitigation Bank

**Prepared By:**

Jeremy Freimund, P.H.	Lummi Nation Water Resources Manager
Michael Muscari, PWS	ESA Senior Wetland Ecologist
Frank Lawrence III	Lummi Nation Natural Resources Specialist
Gerry Gabrisch	Lummi Nation GIS Manager
Craig Dolphin	Lummi Nation Database Manager

**October 2014**



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## EXECUTIVE SUMMARY

Summary of 2013 Activities	
<b>Name of Mitigation Bank</b>	Lummi Nation Wetland and Habitat Mitigation Bank
<b>Bank Phase</b>	Phase 1A
<b>U.S. Army Corps of Engineers Reference Number</b>	NWS-2008-1519-SO
<b>Bank Sponsor</b>	Lummi Natural Resources Department
<b>Project Lead</b>	Jeremy R. Freimund, P.H.; Water Resources Manager; <a href="mailto:jeremyf@lummi-nsn.gov">jeremyf@lummi-nsn.gov</a> ; 360-312-2314
<b>Field Lead</b>	Frank Lawrence III; Natural Resource Specialist; 360-312-2309
<b>Contracted Technical Support</b>	Michael Muscari, PWS; Senior Wetland Ecologist, ESA – Northwest Biological Research Group; 206-789-9658
<b>Treatment Dates: Mowing Reed Canarygrass Areas for 2014 Planting Season</b>	Mow Area 1 (3.63 acres): July 24 – Aug. 8, 2013 Mow Area 2 (0.33 acres): July 24 – Aug. 8, 2013
<b>Treatment Dates: Herbicide Application Area 1 and Area 2</b>	September 12, 2013
<b>Treatment Dates: Willow Planting</b>	Willow Planting Begins: April 3, 2013 Willow Planting Completed: April 14, 2013
<b>Treatment Dates: Brushing and Planting Conifers</b>	Brushing/Conifer Planting Begins: March 6, 2013 Brushing/Conifer Planting Completed: April 1, 2013

## **INTRODUCTION**

The purpose of this as-planted report is to document enhancement activities conducted during 2013 for Phase 1A of the Lummi Nation Wetland and Habitat Mitigation Bank (Bank). Phase 1A is located at the Nooksack Delta Site. This report is part of the documentation required to demonstrate attainment of the performance standards established in the Mitigation Banking Instrument (MBI). The Interagency Review Team (IRT) must review and approve the documentation as a condition of awarding and releasing additional Bank credits. The IRT award of credits will be reflected in a letter issued using IRT letterhead and signed by the IRT Chair (i.e., the U.S. Army Corps of Engineers, District Engineer or his/her designee).

Documentation of the Baseline Vegetation Conditions of the Nooksack Delta Site – Phase 1A was completed in December 2010 and accepted by the IRT. Because of the limited planting window and anticipation that the MBI would be executed during the second quarter of 2011, enhancement activities were initiated during the first quarter of 2011. These enhancement activities continued during 2012 and 2013. Although the MBI was not executed until July 6, 2012, the IRT stated that the December 2010 Baseline Vegetation Conditions report would be the basis for evaluating attainment of the performance standards identified in the MBI.

## **PHASE 1A DESIGN PLAN SUMMARY**

The enhancement design for the Phase 1A Nooksack Delta Site is focused on (1) removing and managing invasive plant species; and (2) increasing native plant species richness through planting native shrubs and coniferous trees. Following the weed control effort and plantings, the primary work on the site will involve monitoring and maintenance activities.

The Nooksack Delta Site Phase 1A enhancement design is comprised of the following elements in the general sequence that they will occur:

1. Designate and protect the land within the site through a conservation easement;
2. Eradicate or control invasive species;
3. Plant native conifer species within the deciduous forests; and
4. Monitor effectiveness of treatments and underplantings, and repeat as needed to meet performance standards.

The areas designated for the different wetland enhancement measures are shown on Figures 1 and 2. Specific design elements for the enhancement areas are summarized in Table 1 and described below.

**Table 1. Enhancement Actions – Nooksack Delta Site Phase 1A**

Type of Action	Approximate Area (acres)	Approximate Area (percent)
Wetland Enhancement (knotweed removal: treatment and monitoring area)	0.9	0.2
Wetland Enhancement (weed removal/willow planting: reed canarygrass, yellow flag iris)	101.2	26.6
Wetland Enhancement (weed removal: English ivy)	2.1	0.6
Wetland Enhancement (conifer underplanting)	275.7	72.6
Total Enhancement Area	379.9	100.0

## BANK OBJECTIVES AND PERFORMANCE STANDARDS

The Bank's success will be measured by documenting progress toward achieving the objectives and associated performance standards identified in the MBI. The prescribed performance standards are intended to measure the success of the ecological restoration and enhancement efforts at the Bank. Only the Phase 1A performance standards related to the work performed in 2013 (Year 2 of Phase 1A operation) are described below.

**Objective 1:** Permanently protect aquatic ecosystem functions of the Nooksack Delta Site by instituting the MBI and implementing a conservation easement with permanent funding for site stewardship.

**Performance Standard:** The conservation easement and financial assurances are included in the MBI. The IRT approved the MBI on July 6, 2012 and the Conservation Easement was approved by all parties and recorded on October 17, 2012. The IRT released 19 credits on October 18, 2012.

**Objective 2:** Enhance ecological function by removing and managing reed canarygrass and yellow flag iris and replanting with native shrubs.

**Performance Standard:** Planting of willows in the reed canarygrass and yellow flag iris treatment area (shrub plots) completed according to IRT approved plans. Documentation of performance standard achievement provided in as-planted reports (one for each of the anticipated four planting years) showing completed planting. The as-planted reports, which must be approved by the IRT, will include a species list, plant spacing and density,

a global positioning system (GPS) map showing the center of each planting plot, and final planted acreages each year.

**Objective 3:** Enhance ecological function by removing and managing English ivy from a 2.1-acre forested area.

**Performance Standard 3A:** Cutting of English ivy and root pulling with hand tools in treatment area was completed during 2011 and described in the 2011 As-Planted Report.

**Objective 4:** Enhance long-term forested wetland ecological function and habitat for federally listed fish species (Chinook, steelhead, and bull trout) by planting conifers beneath deciduous trees in the existing forested areas and along the many stream channels.

**Performance Standard 4A:** Planting of conifers in the underplanting area completed according to IRT-approved plans. Documentation will include species list, plant spacing and density, GPS map showing the perimeter of the planted area, and final number of treated acres per year.

## **PHASE 1A WORK COMPLETED IN 2013 (YEAR 2)**

The areas where enhancement actions were completed in 2013 are shown on Figure 3 (planted shrub plots) and Figure 6 (conifer underplanting areas) and summarized in Table 2. Work completed in 2013 included planting willow stakes and planting conifer seedlings pursuant to the MBI. Although 2013 represents Year 2 for the Phase 1A site enhancement activities, because the enhancement activities are being conducted in “stages” over several years, enhancement activities conducted during 2013 represent Year 0 for Stage 3 enhancement activities. Some of the actions shown in Figures 1 and 2 as potential areas for enhancement by Year 2 were not completed during 2013 due to supply problems that precluded the planting of conifer seedlings during 2011 and contractor challenges during 2012 (e.g., insufficient manpower, equipment failures). Completion of these actions will be documented in future as-planted reports.

Operational changes that occurred during 2013 included the following:

1. After documented performance challenges during the 2012 planting season, a different contractor was selected for the 2013 planting season.
2. After two years of attempting to treat relatively large areas with willow stakes and conifer underplanting during a very limited planting window (due to limitations related to weather and river flow conditions), the targeted treatment areas and number of plantings (willow stakes and conifer plugs) were reduced.
3. Due to limited success of the willow stake planting effort in a portion of the area planted during 2012 (primarily the eastern planted area), portions of 480 of the 679 (71%) willow plots originally planted during 2012 were replanted with between 10 and 25 willow stakes per plot during 2013.



**Table 2. Phase 1A Enhancement Actions Completed in 2013**

Type of Wetland Enhancement Action	Area (acres)
Knotweed removal: treatment and monitoring area	0
Willow planting: reed canarygrass, yellow flag iris	0.8
Weed removal: English ivy	0
Conifer underplanting	17.0
Total Enhancement Area 2013	17.8

### **Reed Canarygrass/Yellow Flag Iris Treatment and Willow Plantings**

#### **Work Completed in 2013**

Work completed during 2013 included replanting portions of 480 of the 679 shrub plots (71%) planted during 2012 that had low success rates and planting an additional 0.8 acres of reed canarygrass treatment and willow plantings. The 2012 plots that were replanted during 2013 were replanted with between 10 to 25 stakes per plot – the 311 willow plots in the eastern portion of the 2012 planting area averaged about 22 replanted willow stakes per plot. In addition, willows were planted within 17 new plots each measuring approximately 20 feet in diameter near the southeastern corner of the 2012 planting area (see Figure 3).

Similar to 2011, the locations for the plots to be planted with willow stakes in 2013 were established in a grid pattern with 40-foot on center spacing using a Geographic Information System (GIS). The latitude and longitude of each of the plots was then loaded from the GIS into a mapping grade, hand-held global positioning system (GPS) unit with a horizontal accuracy of  $\pm 2$  feet (Trimble GeoXT). The GPS unit was used to locate the plot centers in the field (see Figure 3). Each plot was designated with a unique identifier for data tracking purposes and a wood lathe with a unique identifier written on it was used to mark the plot center. Survey flagging was attached to the wood lathe to help field locate the plot centers.

If the plots centers located using the GIS were found in the field to be unsuitable for planting due to site conditions (e.g., dense large woody debris, deep water, cattails), either the plot center was offset to an adjacent suitable site and its new location recorded using the GPS or the location was by-passed and the next plot center located. The approach taken was determined based on field conditions and the degree that the plot location was judged to be not suitable for planting.

As noted in previous As-Planted reports, the utility of mowing the essentially dormant reed canarygrass within the plots prior to planting the willow stakes was questioned after

the 2011 planting effort. Field visits during the summer of 2011 suggested qualitatively that the mowing effort had little or no effect on suppressing the reed canarygrass growth. Consequently, two alternative planting methods were identified for the 2012 planting season. One approach was to plant the willow stakes within the 20-foot diameter plot boundaries without mowing first. The second approach was to treat an area with herbicide during the summer of 2011 and then plant the 20-foot diameter plots within the herbicide treated area during the spring of 2012. The combination of these two planting methods was also used during 2013.

The affected willow plots from the 2012 planting season were replanted during 2013 without mowing both because mowing would have certainly impacted the living stakes within the replanted plots and the approach had previously been shown to be ineffective. The 17 newly planted willow plots in 2013 were not mowed prior to planting. In addition, a 3.96 acre area of the 2014 reedcanary grass planting area was mowed using hand-held brush cutters over the July 24 through August 8, 2013 period. Of this 3.96 acre area, 0.33 acres was in the 100-foot buffer of the mitigation bank but was treated anyways as it was part of a continuous patch of reed canarygrass (see Figure 4). The acreage that was mowed was determined by walking the boundary with the Trimble GeoXT GPS unit. The 3.96 acre mowed area was allowed to start regrowing and then was treated by a licensed pesticide applicator on September 12, 2013 by spraying with a herbicide (Aquamaster). The pesticide application record is provided in Appendix A of this As-Planted Report.

Re-planting willow stakes within the field located and marked (with wood lathe) 20-foot diameter plots began on April 3, 2013. The willow planting was delayed so that the contractor could initially focus on brushing and planting the conifer seedlings, which began on March 6, 2013. Earlier access to the site was also limited due to high river flows or unsuitable weather conditions. As depicted in Figure 3, live willow stakes were re-planted in many of the 20-foot diameter plots planted initially during 2012 and in 17 new plots located near the southeastern corner of the 2012 planting area. Three species of willow stakes were planted: Pacific (*Salix lasiandra*), Sitka (*S. sitchensis*), and Hooker's (*S. hookeriana*). Stake spacing averaged 2 to 3 feet on center (approximately 57 stems per plot or 1,425 stems per acre). The re-planting of existing plots and the planting of additional plots was completed on April 14, 2013.

Due to the challenges of planting over 40,000 willow stakes during each of the previous two years and the lower success rate that resulted during 2012 (at least partially attributable to the late planting period, which extended to May 15, 2012) only 10,000 willow stakes were purchased for the 2013 planting season. Following the planting season, the GIS was used to draw a polygon around the planted plot locations and the treated area determined. Using this approach, the overall new treatment area for 2013 was determined to be 0.8 acres. For comparison/validation purposes, at a planting density of approximately 1,425 stems per acre the 969 willow stakes used for the 17 newly planted plots would be enough to treat 0.7 acres. Similarly, at an average planting density of 25 plots per acre, the 17 plots equates to a treatment area of 0.7 acres. The 0.8 acres of treated area is slightly more than the area computed based on stem counts and planting density due to the presence of open water areas or large woody debris

concentrations that were unsuitable for planting within the treated area. These unsuitable planting areas are visible in Figure 3.

Willow stakes were purchased from the Washington Conservation District plant materials center located in Skagit County (invoices and pick lists are provided in Appendix B). Figure 5 includes photographs of the 2013 planting area taken during both planting in April 2013 and during baseline monitoring in September 2013.

### Willow Plot Sampling

Performance standards for the willow planting plots include: documentation of planting in Year 0 (this report), shrub aerial cover starting with a minimum of 10% in Year 1, and an increase in the diameter of the plots beginning in Year 7. When approved by the IRT, this As-Planted report satisfies the Year 0 performance standards specified in Table C.2 of the MBI.

In order to provide a basis of comparison for the future diameters of the plots, the diameter of a randomly selected plot was measured as described in the Mitigation Banking Instrument for Year 0 (2013). The GIS was used to randomly sample/select 1 of the 17 plots (a little over 5% of total) for shrub cover and plot diameter measurements. The single plot from 2013 selected for sampling and monitoring is shown in Figure 3. The plot location will also serve as permanent photo point; four photographs will be taken at the plot during future monitoring.

Three measurements of the plot diameter were made at the sample plot and averaged. Baseline diameter measurements were taken near the end of the growing season (September 23, 2013) using a fiberglass tape stretched through the center of the plot (marked with wood lathe) and were made from the outermost portion of the willow stems. Shrub cover was estimated to average 3% with a standard error (SE) of 0 for the single plot monitored at the end of the Year 0 (2013) growing season.

The mean diameter of the single willow plot sampled in September 2013 was 21.9 feet. The Year 0 diameter for the single monitoring plot and the target diameter for the monitoring plot are shown in Table 3.

The single sample plot is designated as a permanent plot. The mean diameter for the individual plot will be the baseline used to compare with the mean diameter measured in Years 7 and 10. Performance standards for Year 7 include a 10% minimum increase in plot diameter for at least one-quarter of the sample plots. The minimum target diameter for the single plot in Year 7 is shown in Table 3. Additional details, including error measurements are in Appendix C.

**Table 3. Willow Plots Planted in 2013 (5% of total shrub plots)**

<b>Station Name</b>	<b>Mean Diameter in Year 0 (ft)</b>	<b>Target Diameter (+10%) by Year 7 (ft)</b>
WP20130016	21.9	24.1

## **Conifer Underplanting**

### **Work Completed in 2013**

Conifers were planted within deciduous forest areas shown on Figure 6 at a contracted average spacing of 13 feet on center and an average density of 260 seedlings per acre. The conifer planting areas were prepared by cutting down competing shrub vegetation using hand-operated, gas powered steel bladed brush cutters. Plant material invoices (see Appendix B) reflect that 10,000 bare root conifer seedlings (7,500 Western Red Cedar [75%] and 2,500 Sitka Spruce [25%]) were purchased. Planting and billing records from the contractor indicate that the conifer seedlings were planted during the March 6, 2012 through April 1, 2013 period. Similar to the willow planting area, following the planting season the perimeter of the planted area was located in the field using the GPS and the GIS was used to draw a polygon around the planted area. Using this approach, the overall conifer underplanting treatment area for 2013 was determined to be 19.07 acres. However, it was later determined that 2.04 acres of the planted area is located in the 100-foot buffer of the mitigation bank, which reduced the total planted area within the mitigation bank enhancement area to 17.0 acres. For comparison/validation purposes, at a planting density of approximately 260 seedlings per acre, the 10,000 seedlings would be enough to treat 38.5 acres. Representative photographs of the conifer plantings are included in Figures 7 and 8. Figure 9 shows the combined area of conifer underplantings over the 2012 and 2013 planting season. Figure 10 shows the combined enhancements that have been conducted in the Phase 1A site over the 2011 through 2013 period.

### **Conifer Sampling Transects**

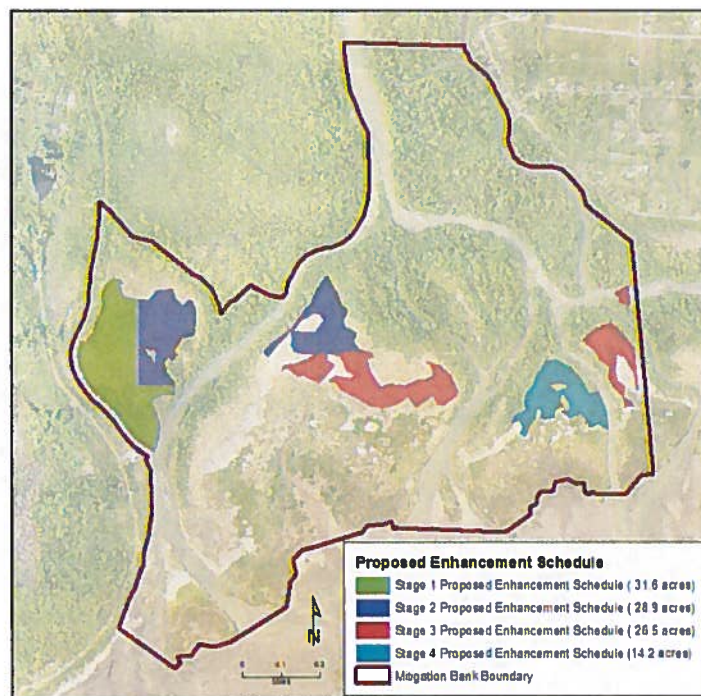
Monitoring was conducted along the 22 transects shown in Figure 6 during the September 24 through October 29, 2013 period to provide a baseline (Year 0) assessment of tree density, height, and overall health. All but one of the transects were monitored over the October 21 through October 29, 2013 period. The start and endpoints of each transect were located using GPS and marked in the field with wood lath. Photographs were taken at each end of each transect and also of at least one representative tree along each transect. Live conifer saplings within a 6-foot-wide “belt” centered on each transect were counted to sample the tree population. The mean density of conifers was measured to be 350.8 per acre (SE 42), based on 22 transects. The average tree height was 2.3 feet (SE 0.05) based on measurements of 95 individual trees.

## **Knotweed Control**

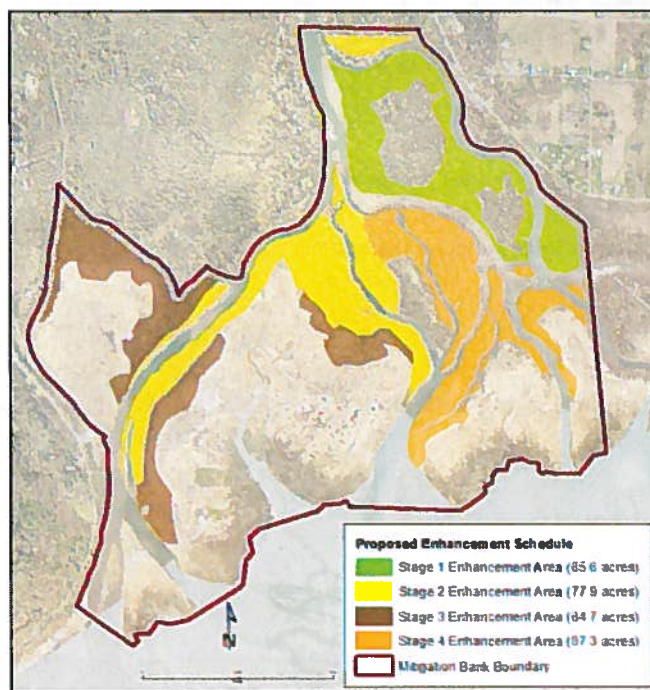
The existing knotweed occurrences along the riverbanks were located with GPS in late summer 2012 to provide an updated existing conditions map. Knotweed control efforts have not begun on the Bank site. Alternative knotweed control methods (e.g., spraying with salt water) are being evaluated and are expected to be implemented in 2015.

## **FIGURES**





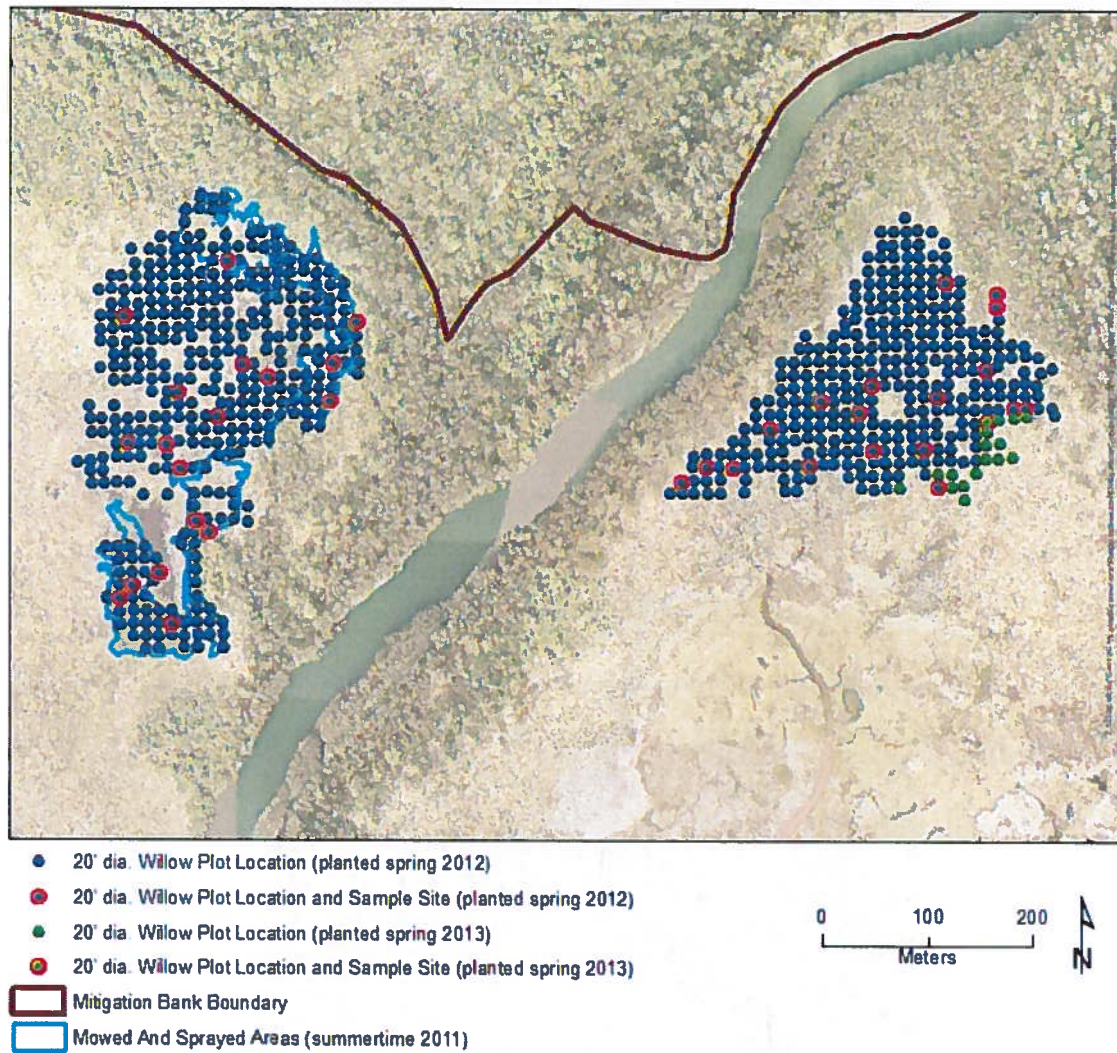
**Figure 1. Proposed Reed Canarygrass Treatment Areas (Phase 1A)**



**Figure 2. Proposed Conifer Underplanting Areas (Phase 1A)**

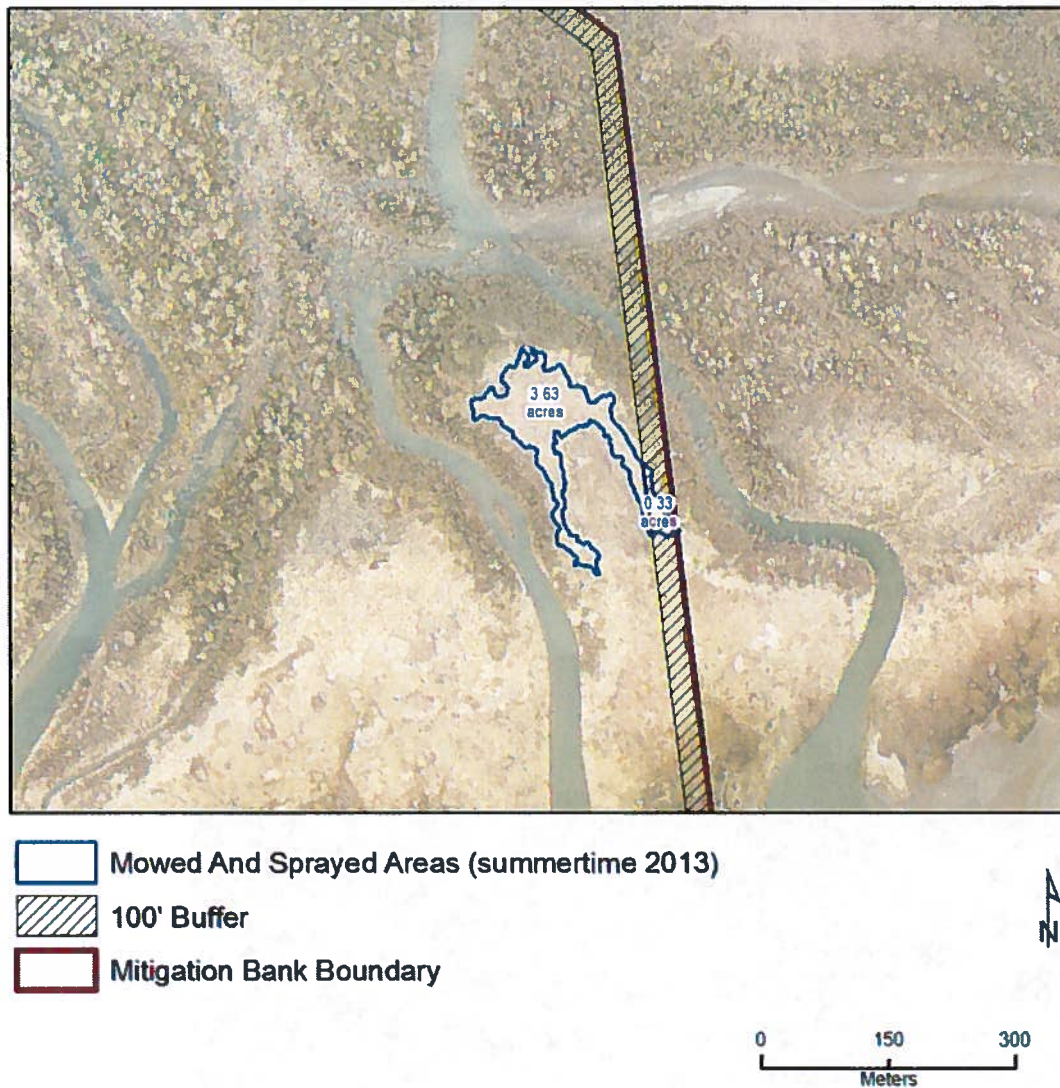
Figures 1 and 2 are presented for reference to the proposed 4-year enhancement schedule. Full sized images and further details are provided in the MBI.





**Figure 3. 2012 Willow Planting Plots Selectively Replanted and 2013 Willow Plots**





**Figure 4. Mowed and Herbicide Treated Area During 2013 for 2014 Planting Season**



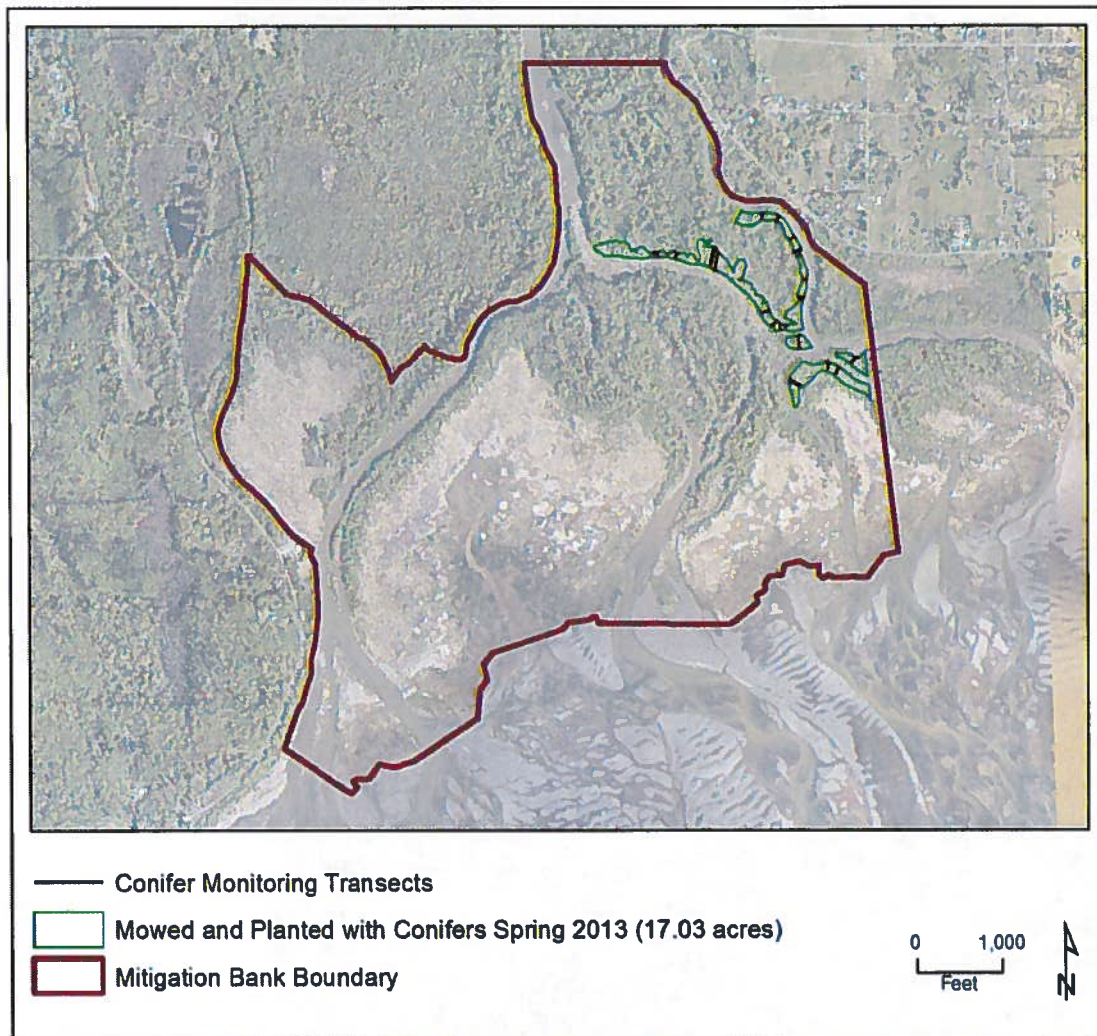
Photograph taken in April 2013 showing a typical 2013 willow planting plot area.



Photograph taken in September 2013 facing due south from the center of the 2013 monitoring plot.

**Figure 5. Photographs of 2013 Willow Planting Plots**





**Figure 6. Conifer Underplanting Areas Completed in 2013**





Brushing activities in preparation for conifer planting in March 2013.



Conifer planting in March 2013.

**Figure 7. Photographs of Site Preparation and Conifer Plantings**



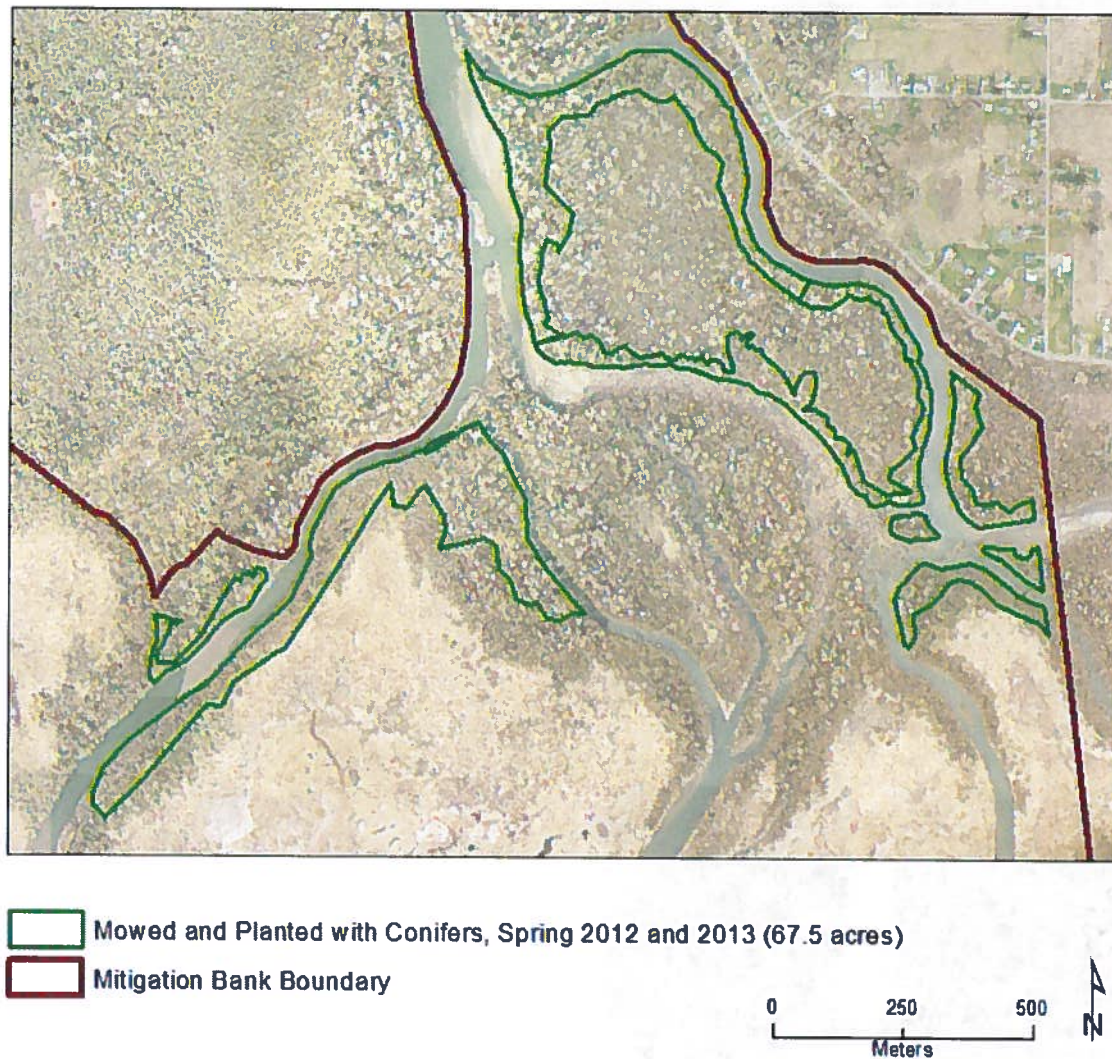


Sitka spruce planted March 2013 within conifer underplanting area. Approximately 0.50 foot of new growth can be seen in photograph taken October 2013.



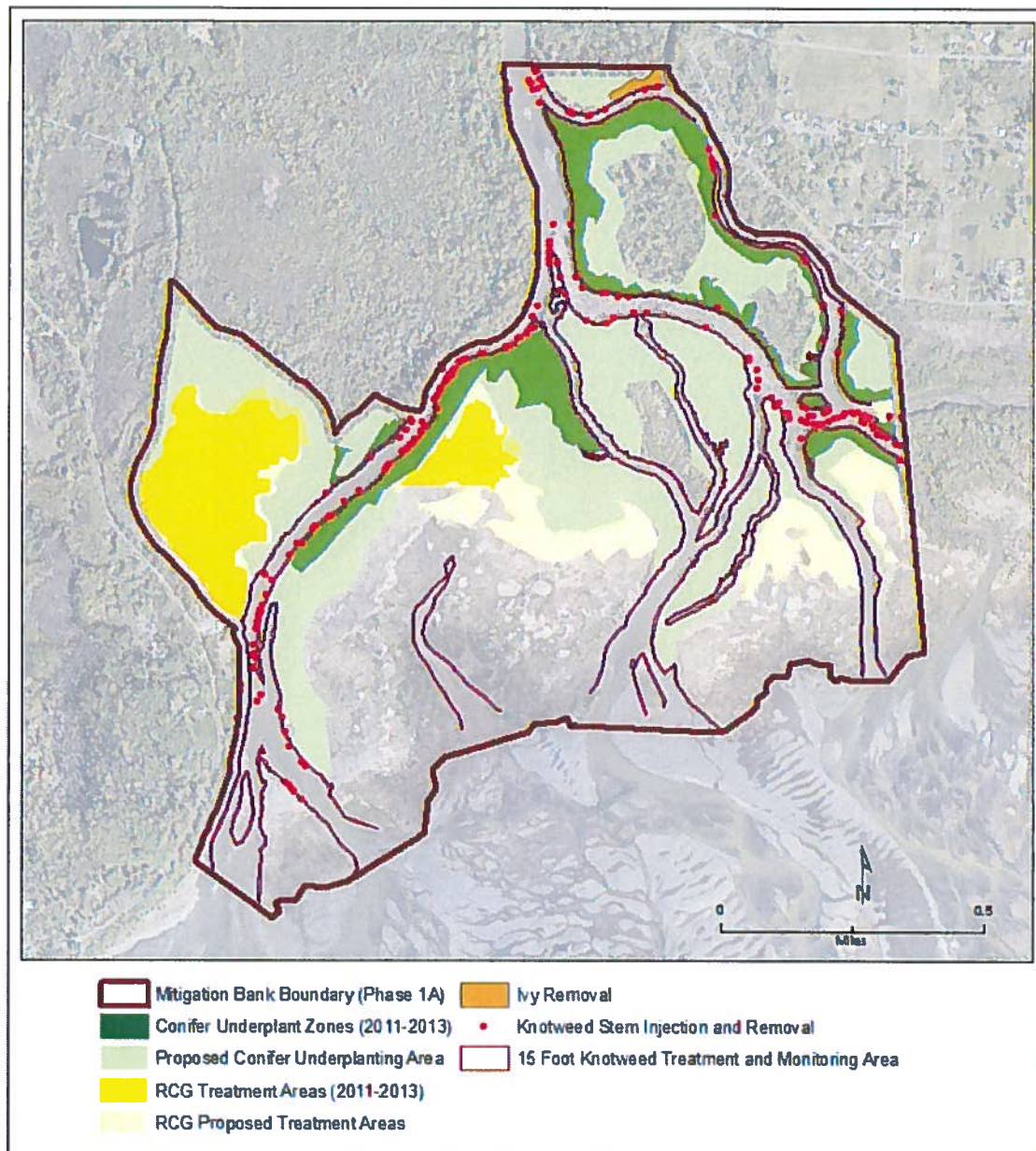
Western red cedar planted March 2013 in conifer underplanting area. Approximately 0.75 foot of new growth can be seen in photo taken in October 2013.

**Figure 8. Photographs of Conifer Plantings in October 2013**



**Figure 9. Conifer Underplanting Areas Completed in 2012 and 2013 Combined**





**Figure 10. Treated Areas Completed 2011 through 2013**





## **APPENDIX A: PESTICIDE APPLICATION RECORD**





## Herbicide Application Report

*Prepared on September 15, 2013 for:*

**Lummi Natural Resources**

Frank Lawrence and Jeremy Freimund

2665 Kwina Road

Bellingham, WA 98226



Squalicum Mountain Ecological Restoration was contracted by the Lummi Indian Business Council to provide labor and materials to spray herbicides on approximately 4 acres of reed canary grass at a remote site located southeast of Marietta. Frank Lawrence and 4 Squalicum Mountain personnel applied a 1.5% aquatic glyphosate solution at a 2.5 qts./acre rate using back pack units on September 12, 2013. An aquatic glyphosate, Aquamaster, the surfactant Agri-Dex, and blue indicator dye were used.

Frank Lawrence and Brad Newell set up the spraying operation on September 11, when all of the spraying equipment and chemicals were staged within the restoration area. A skiff was used to transport materials from Marietta to the site. A gas powered water pump and 400 feet of hoses were used to move water from the Nooksack River to the work area, where the chemicals were mixed in 30 gallon garbage cans. The individual 5-gallon backpacks were filled using buckets.

The site conditions were ideal for the herbicide spraying. The canary grass had been mowed in August and regrowth was about 8-16 inches high. The wind was light, and dry conditions prevailed for several days following application. Herbicide effects should become evident within a week. There will be some untreated regrowth appearing later from under the thick layers of dry mowed grass, but these areas were minimal and the overall coverage was very good.

Brad Newell

Squalicum Mountain Ecological Restoration



# PESTICIDE APPLICATION RECORD

~~(Knotweed)~~ REED CANARY GRASS

Washington State Department of Agriculture  
Plant Protection Division  
PO Box 42560  
Olympia, WA 98504-2560  
(360) 902-1853

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. Chapter 17.21 RCW)

1. YEAR OF PESTICIDE APPLICATION <b>2013</b>	MONTH OF APPLICATION <b>SEPT.</b>	DAY OF APPLICATION <b>12</b>	START TIME OF APPLICATION <b>8 am</b>	STOP TIME OF APPLICATION <b>3 pm</b>
2. NAME OF PERSON FOR WHOM PESTICIDE WAS APPLIED <b>JEREMY FREIMUND, FRANK LAWRENCE</b>			FIRM NAME (IF APPLICABLE) <b>Lummi NATURAL RESOURCES</b>	
STREET ADDRESS <b>2665 KUWANA RD</b>			CITY <b>BELLINGHAM</b>	STATE <b>WA</b>
3. LICENSED APPLICATORS NAME (IF DIFFERENT FROM #2 ABOVE) <b>BRAD G. NEWELL</b>			LICENSE NUMBER <b>61034</b>	
FIRM NAME (IF APPLICABLE) <b>SQUALICUM MTN. ECOLOGICAL RESTORATION</b>			TELEPHONE NUMBER <b>360.961.2512</b>	
STREET ADDRESS <b>2925 ST. CLAIR ST.</b>			CITY <b>BELLINGHAM</b>	STATE <b>WA</b>
4. PERSON "A" WHO APPLIED PESTICIDE (IF DIFFERENT FROM #3 ABOVE)			PERSON "A" LICENSE NUMBER	
PERSON "C" WHO APPLIED PESTICIDE			PERSON "C" LICENSE NUMBER	
PERSON "B" WHO APPLIED PESTICIDE			PERSON "B" LICENSE NUMBER	
PERSON "D" WHO APPLIED PESTICIDE			PERSON "D" LICENSE NUMBER	
5. APPLICATION CROP OR SITE <b>NOOKSACK DELTA RESTORATION SITE</b> <b>- REED CANARY GRASS</b>				6. TOTAL AREA TREATED (ACRE, SQ. FT., ETC.) <b>4 ACRES</b>

7. Please list all information for each pesticide in the tank mix (including surfactants) or pesticide injected:

(a) Product Name	(b) EPA Reg. No.	(c) Total Amount of Herbicide Applied in Area Treated (in gallons)	(d) Herbicide Applied/Acre (or other measure)	(e) Concentration Applied
<b>AQUA MASTER</b>	<b>524-343</b>	<b>2.5 gal</b>	<b>2.5 GB/A</b>	<b>1.5%</b>
<b>AGRI-DEX</b>	<b>5905-50094-AA</b>	<b>1.13 gal</b>		<b>0.5%</b>
<b>H-LITE DYE (BLUE)</b>		<b>.56 gal</b>		

8. Address or geographical coordinates of application: **Lummi RESERVATION**  
**48° 46' 43.77" N, 122° 34' 33.57" W**  
NOTE: If the application is made to one or more acres of agricultural land, the field location must be shown on the map on page two of this form.

9. Wind direction and estimated velocity during the application: **VAR. 0 - 7 MPH**  
(The permit requires foliar treatments to occur when the wind is less than 10 miles per hour)

10. Temperature during the application: **65-74°F**

11. Apparatus license plate number (if applicable):

12. ☒ Ground ☐ Injection

13. Plant Specific Information (check one in each row):

Plant density: ☒ Seedlings/Regrowth from shoots ☐ Scattered stand ☐ Dense stand  
Height of plant: ☒ Less than 1 foot ☐ 1 to 5 feet ☐ 5 feet or taller

**Squalicum Mountain**  
Ecological Restoration, Inc.

Brad Newell  
2925 St. Clair Street  
Bellingham, WA 98226  
cell: (360) 961-2512  
fax: (360) 650-0825  
web: [www.squalicumeco.com](http://www.squalicumeco.com)

**Invoice No. 2105**

**Lummi Indian Business Council**

**Natural Resources Dept.**

**Jeremy Freimund  
2665 Kwina Road  
Bellingham, WA 98227**

**Contract # 166-13, PO # 139159**

**Herbicide Application  
September 15, 2013**

OK to  
pay  
Jeremy Freimund  
9/18/2013

Labor and materials were provided to apply 250 gallons of a 1.5% aquatic glyphosate solution to 4 acres of reed canary grass. The work was completed on September 12, 2013.

Herbicide Application	4 acres @ 700.00/acre	\$2,800.00
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## **APPENDIX B: INVOICES**





**WACD Plant Materials Center**

16564 Bradley Road  
Bow, WA 98232  
USA

**INVOICE**

Invoice Number: 13-183-Final  
Invoice Date: Nov 29, 2012  
Page: 1

Voice: 360-757-1094  
Fax: 360-757-3923

**Bill To:**

Lummi Natural Resources - Lawrence, F  
Attn: Frank Lawrence  
2616 Kwina Road  
Bellingham, WA 98226

**Ship to:**

Lummi Natural Resources - Frank L  
Attn: Frank Lawrence  
2616 Kwina Road  
Bellingham, WA 98226

Customer ID	Customer PO	Payment Terms	
L1240.3	PO #133754	Net 30 Days	
Sales Rep ID	Shipping Method	Ship Date	Due Date
GauthierJ	Best Way		12/29/12

Quantity	Description	Unit Price	Amount
4,300	Western Red Cedar (Thuja plicata) 201-0.5, P-1, 12"+ (25)	0.61	2,623.00
2,200	Western Red Cedar (Thuja plicata) 652-2.0, P-1, 12"+ (25)	0.61	1,342.00
1,000	Western Red Cedar (Thuja plicata) BC, P-1, 12"+ (25)	0.66	660.00
2,500	Sitka Spruce (Picea sitchensis) BC, P-1, 12"+ (25)	0.66	1,650.00
5,000	Hooker Willow (Salix hookeriana) WW, 36" cutting	0.66	3,300.00
2,500	Sitka Willow (Salix sitchensis) WW, 36" cutting	0.66	1,650.00
2,500	Pacific Willow (Salix lasiandra) WW, 36" cutting	0.66	1,650.00
1	Deposit	3,080.50	-3,080.50

OK to Pay  
Jenny Friedman  
11/30/2012

Check/Credit Memo No:

Subtotal	9,794.50
Sales Tax	
Total Invoice Amount	9,794.50
Payment/Credit Applied	
<b>TOTAL</b>	<b>9,794.50</b>

We will add finance charges on invoices more than 90 days overdue.

**PMC Sales  
Picklist Report  
As of Feb 21, 2013**

Filter Criteria includes: 1) Sales Order Numbers from 13-183 to 13-183; 2) Excludes Drop Ships; 3) Net Quantity. Report order is by SO Number. Report is printed in Detail Format.

Customer Customer ID Sales Order Number	Qty on Order	Line Description
Lummi Natural Resources	1050	Western Red Cedar (Thuja plicata) BC, P-1, 12"+ (25)
L1240.3	1410	Western Red Cedar (Thuja plicata) 652-2.0, P-1, 12"+ (25)
13-183	5040	Western Red Cedar (Thuja plicata) 201-0.5, P-1, 12"+ (25)
	2500	Sitka Spruce (Picea sitchensis) BC, P-1, 12"+ (25)
	5000	Hooker Willow (Salix hookeriana) WW, 36" cutting
	2500	Sitka Willow (Salix sitchensis) WW, 36" cutting
	2500	Pacific Willow (Salix lasiandra) WW, 36" cutting

later < [ ]

20000  
Today

Willow  
Later

3-8-13  
Full amount

~~100. 100. 100. 100~~  
~~100. 100. 50. 100.5~~  
~~200. 100. 200.~~  
~~100. 150. 100.5~~  
~~200. 100. 100.5~~  
~~100. 200. 100.5~~  
~~100. 100. 100.5~~  
~~200. 200. 100.5~~  
~~100. 100. 100.5~~

pick up Mar 1<sup>st</sup>  
Friday

# PMC Sales Picklist Report As of Feb 21, 2013

Filter Criteria includes: 1) Sales Order Numbers from 13-183 to 13-183; 2) Excludes Drop Ships; 3) Net Quantity. Report order is by SO Number. Report is printed in Detail Format.

Customer Customer ID Sales Order Number	Qty on Orde	Line Description
Lummi Natural Resources	1050	Western Red Cedar (Thuja plicata) BC, P-1, 12"+ (25)
L1240.3	1410	Western Red Cedar (Thuja plicata) 652-2.0, P-1, 12"+ (25)
13-183	5040	Western Red Cedar (Thuja plicata) 201-0.5, P-1, 12"+ (25)
	2500	Sitka Spruce (Picea sitchensis) BC, P-1, 12"+ (25)
	5000	Hooker Willow (Salix hookeriana) WW, 36" cutting
	2500	Sitka Willow (Salix sitchensis) WW, 36" cutting
	2500	Pacific Willow (Salix lasiandra) WW, 36" cutting

later <

20000  
Today

3-8-13  
Full

Willow  
Later

Boys  
100

Willows on March 28

Pos  
LHT LHT  
LHT LHT  
LHT FL  
SIT LHT LHT  
LHT LHT  
LHT FL  
LHT LHT  
LHT LHT  
LHT FL

Pick up Mar 1<sup>st</sup>  
Friday



## **APPENDIX C: YEAR 0 SHRUB PLOT DIAMETERS**



Shrub Planting Plots Sampled at Nooksack Delta Phase 1A Site for 2013 Planting Stage  
(5% of Total Shrub Patches)

Station Name	Stage Name	Mean Diameter	Count Of Metric	Standard Deviation	Standard Error	Baseline	Alternative Baseline	Target Diameter
WP20130016	Baseline	21.86	3	2.34	0.78	21.86		24.05

